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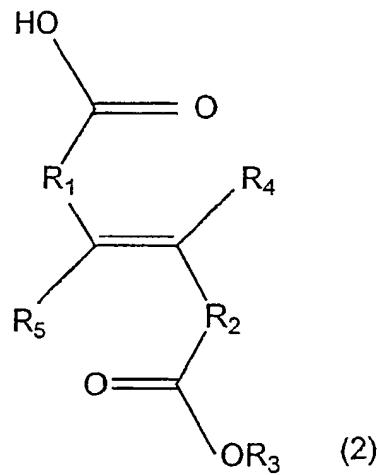
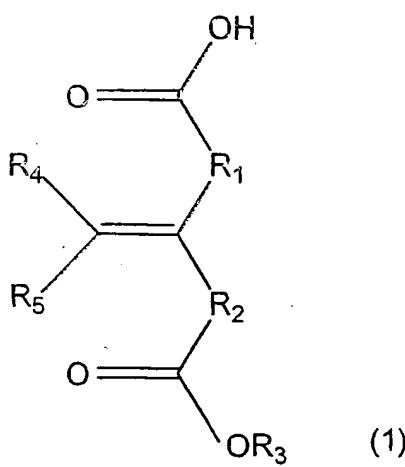
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(54) Title: NEGATIVE RESIST COMPOSITION AND PROCESS FOR FORMATION OF RESIST PATTERNS

(54) 発明の名称: ネガ型レジスト組成物およびレジストパターン形成方法



(57) Abstract: A negative resist composition containing a polymer comprising as a monomer component one member selected from among dicarboxylic monoesters represented by the general formulae (1) and (2); and a process for formation of resist patterns by using the same: (1) (2) [wherein R<sub>1</sub> and R<sub>2</sub> are each an alkyl chain of 0 to 5 carbon atoms; R<sub>3</sub> is a substituent having at least two alicyclic structures; and R<sub>4</sub> and R<sub>5</sub> are each hydrogen or alkyl of 1 to 8 carbon atoms]. By virtue of the polymer, the composition can form a resist pattern having improved resistances to dry etching and electron beam from a scanning electron microscope (SEM), while the solubility in an alkaline developing solution is maintained.

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緒章有り

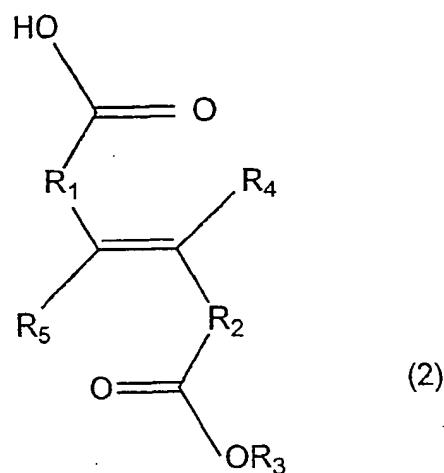
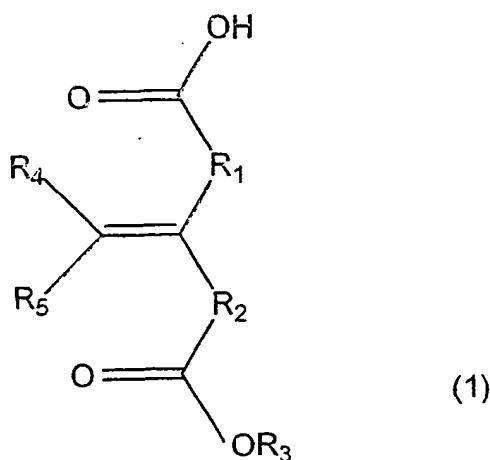
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ATTACHMENT E



(57) 要約:

下記一般式(1)および(2) :



(式中、R<sub>1</sub>およびR<sub>2</sub>は炭素数0～5のアルキル鎖を表し、R<sub>3</sub>は少なくとも2以上の脂環式構造を有する置換基を表し、R<sub>4</sub>およびR<sub>5</sub>は水素原子、または炭素数1～8のアルキル基を表す。)で表されるジカルボン酸モノエステル化合物のいずれか一種をモノマー成分として有する重合体を含むネガ型レジスト組成物及びそれを用いたレジストパターン形成方法。当該重合体を含有することにより、ドライエッチング耐性および走査型電子顕微鏡(SEM)による電子線への耐性が向上するとともにアルカリ現像液に対する溶解性が維持される。

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/004080

**A. CLASSIFICATION OF SUBJECT MATTER**  
Int.Cl<sup>7</sup> G03F7/038, C08F220/10

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
Int.Cl<sup>7</sup> G03F7/038, C08F220/10

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1922-1996	Jitsuyo Shinan Toroku Koho	1996-2004
Kokai Jitsuyo Shinan Koho	1971-2004	Toroku Jitsuyo Shinan Koho	1994-2004

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	① JP 2001-247513 A (Mitsubishi Rayon Co., Ltd.), 11 September, 2001 (11.09.01), Full text (Family: none)	1-5
A	② JP 2001-166474 A (JSR Corp.), 22 June, 2001 (22.06.01), Full text (Family: none)	1-5
A	③ JP 2000-284473 A (Fuji Photo Film Co., Ltd.), 13 October, 2000 (13.10.00), Full text & US 6432615 B1	1-5

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	
"A"	document defining the general state of the art which is not considered to be of particular relevance
"E"	earlier application or patent but published on or after the international filing date
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O"	document referring to an oral disclosure, use, exhibition or other means
"P"	document published prior to the international filing date but later than the priority date claimed
"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&"	document member of the same patent family

Date of the actual completion of the international search  
27 May, 2004 (27.05.04)

Date of mailing of the international search report  
15 June, 2004 (15.06.04)

Name and mailing address of the ISA/  
Japanese Patent Office

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Faxsimile No.

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## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/004080

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	(4) JP 2000-250204 A (Shin-Etsu Chemical Co., Ltd.), 14 September, 2000 (14.09.00), Full text & US 6395453 B1	1-5
A	(5) JP 2000-206694 A (Tokyo Ohka Kogyo Co., Ltd.), 28 July, 2000 (28.07.00), Full text & US 2001-49073 A1	1-5
A	(6) JP 2000-75486 A (Siemens AG.), 14 March, 2000 (14.03.00), Full text & EP 957399 A2 & US 6063543 A1	1-5
A	(7) JP 2000-56459 A (Fujitsu Ltd.), 25 February, 2000 (25.02.00), Full text (Family: none)	1-5
A	(8) JP 2000-26548 A (Siemens AG.), 25 January, 2000 (25.01.00), Full text & EP 952166 A2 & US 6306990 B1	1-5